

# Industrial DC Motors

## General Specification

Astrosyn DC motors are supplied to leading companies in a variety of industrial and defence markets. Applications include: barrier operation, electric traction, greenhouse controls, lifting mechanisms, hoist and access ramp drives, tracked vehicle subsystems, compressor drives, hydraulic pumping, and emergency steering systems. We also offer splashproof and submersible motors for marine applications.

Field wound and permanent magnet DC motors are available in our standard range. Latest developments include very high efficiency rare earth designs, as well as brushless motors for low maintenance operation.

Our industrial DC motors come in a wide range of standard types, frame sizes, voltages and power ratings. The motors are manufactured in small to medium batches, and this facilitates customisation for specific applications. A novel feature is that some models can operate at speeds as low as 180 rpm, without the need for a gearbox.



## Voltage and Power Ratings



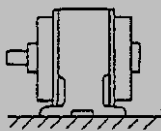
The various types of field wound motors are designed for input voltages from 12-240V. Maximum power output in continuous operation is 15kW, rising to 17kW for intermittent usage.

Permanent magnet motors are available for input voltages from 12-200V. Maximum power output of PM motors in continuous S1 operation ranges from 0.3kW-4kW. This increases to 10kW for intermittent S2 duty.

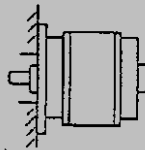


## Frame Sizes and Mounting Orientations

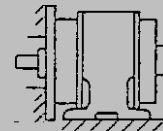
Astrosyn permanent magnet DC motors come in seven standard frame sizes, ranging from 113mm-191mm diameter. Field wound motors are manufactured in frames from 125mm-273mm diameter. The most common mounting arrangements are B3, B5 and B3/5. However, several other mounting arrangements are also available, including B14A/B and various IEC standards.



**B3 foot mounted**



**B5 flange mounted**



**B3/5 foot/flange mounted**



## IP Protection

To cope with widely varying operational and environmental needs, our motors are built to withstand extreme conditions. Standard ranges cover the classes IP20 to IP65, however fully submersible IP68-rated motors are also available.

IP Class	Solids Protection	Liquids Protection
IP20	Against solids >12mm	None
IP40	Against solids >1mm	None
IP54	Limited dust ingress	Water spray in all directions
IP55	Limited dust ingress	Low pressure jets in all directions
IP65	Total dust protection	Low pressure jets in all directions
IP68	Total dust protection	Immersion below 1m

## Options

A wide range of options is available for all motors, including:

- Worm, spur or other gearboxes
- Brakes and encoders
- Thermal protection
- External fan forced air cooling
- Electronic speed controllers
- Starting and reversing relays
- Heavy duty brushgear
- Stainless steel shafts
- IEC or Nema flanges and shafts
- Class F or H windings insulation
- Special housing materials and coatings



## Electronic Speed Controllers for DC Motors

For our industrial DC motors we offer a range of microprocessor based speed controllers with integrated self check and diagnostic facilities.

- **RF050H Controller**  
This unit operates on a supply of 24-36V and can provide continuous S1 output of 30A, with a 60A peak capability.
- **RF070H Controller**  
This model is rated at S1 current of 70A, with a 120A peak output.
- **TDA1 Programmer Unit**  
The TDA1 unit facilitates programming of the controller to optimise functions such as rotation direction, acceleration and maximum speed.



### Astrosyn Industrial DC Motor Range

**Comp** – indicates a compound wound motor, which can be unidirectional or reversible.

**SEM** – indicates a separately excited motor, as opposed to a standard shunt wound motor. The shunt wound motor has the same armature and field voltage whereby the field is usually constant and the armature voltage controls the speed.

In the SEM motor the armature voltage and the field voltage can be varied independently, using a special speed controller. This is ideal for traction applications, to provide higher torque at low speeds.

Frame Size	Motor Type	Voltage Range	Max S1 Output kW	Max S2 Output kW	Speed Range rpm	Minimum Enclosure	Maximum Enclosure	Mounting Options
A113PM	Permanent Magnet	12-48V	0.3kW	0.75kW	1500-3500	IP20	IP40	B14/B5 IEC63
A120PMS	Permanent Magnet	12-180V	0.4kW	1.0kW	600-4000	IP40	IP54	B3/B14/B5 IEC63/71
A120PM	Permanent Magnet	12-180V	0.75kW	1.1kW	600-4000	IP40	IP55	B3/B14/B5 IEC71/80
A125	PM/Series /SEM	24-48V	0.75W	2.0kW	1200-3000	IP20	IP40	B14/B5 IEC80/90
A140PM	Permanent Magnet	12-200V	1.1kW	3.0kW	180-4000	IP40	IP65	B3/B14/B5 IEC80/90
A140PML	Permanent Magnet	12-80V	1.7kW	5.0kW	180-4000	IP40	IP65	B3/B14/B5 IEC80/90
A151	PM/Series /SEM	24-48V	1.2kW	3.0kW	1200-3500	IP20	IP40	B14/B5 IEC80/90
A159	Shunt/Series /Comp	12-220V	1.4kW	4.0kW	800-3500	IP20	IP65	B3/B14/B5 IEC80/90
A166PM	Permanent Magnet	24-96V	4.0kW	10.0kW	800-4000	IP40	IP55	B3/B14/B5 IEC90/100
A178	Shunt/Series /Comp	12-220V	2.0kW	6.0kW	1000-4000	IP20	IP55	B3/B14/B5 IEC80/90
A191	PM/Series /SEM	24-80V	2.0kW	7.0kW	1200-3000	IP20	IP55	B14/B5 IEC90/100
A192	Shunt/Series /Comp	24-240V	2.2kW	7.0kW	1000-4000	IP20	IP55	B3/B14/B5 IEC90/100
A229	Shunt/Series /Comp	24-96V	3.0kW	8.0kW	800-3000	IP20	IP55	B3/B14/B5 IEC90/100
A244	Series/SEM	48-80V	4.0kW	12.0kW	1200-3000	IP20	IP40	B14/B5 IEC112
A273	Shunt/Series /Comp	48-96V	12.0kW	17.0kW	1500-3500	IP20	IP40	B3/B14/B5 IEC112